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# Classification of the quasi-varieties of the finitely generated nilpotent class 2 torsion free groups is a wild problem

## or how the Universal Algebraic Geometry works.

Let $F$ be a field. $M_n(F)$ is the algebra of the $n \times n$ matrices over $F$. We can consider the acting of the group $GL_n(F)$ over set of $k$-tuples of matrices from $M_n(F)$: $(A_1, \ldots, A_k)^S = \left(S^{-1}A_1S, \ldots, S^{-1}A_kS\right)$, where $S \in GL_n(F)$. The problem of classification of the orbits of this action called wild problem if $n, k \geq 2$. This problem is unsolved and very difficult for infinite $F$. It will be proved that the problem of the classification of the quasi-varieties of the finitely generated nilpotent class 2 torsion free groups is not easier than the wild problem. The methods of the universal algebraic geometry will be actively used.